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YUCCA MOUNTAIN – SUPPLEMENTAL RESPONSE – REQUEST FOR ADDITIONAL INFORMATION (RAI) – VOLUME 2, CHAPTER 2.1.1.4, SET 3 (DEPARTMENT OF ENERGY’S SAFETY ANALYSIS REPORT SECTION 1.7) – Identification of Event Sequences

- References:
1. Ltr, Jacobs to Williams, dtd 6/03/09, “Yucca Mountain - Request for Additional Information – Volume 2, Chapter 2.1.1.4, Set 2 and Set 3 (Department of Energy’s Safety Analysis Report Section 1.7)”
 2. Ltr, Williams to Jacobs dtd 7/07/09, “Yucca Mountain - Request For Additional Information (RAI) –Volume 2, Chapter 2.1.1.4, Set 3 (Department of Energy’s Safety Analysis Report Section 1.7) – Identification of Event Sequences

The purpose of this letter is to transmit the U.S. Department of Energy’s (DOE) supplemental response to one (1) Request for Additional Information (RAI). Supplemental RAI number 1 (Question Number 3) is provided as a separate enclosure. The original response to that RAI was provided on July 7, 2009, by Reference 2. DOE expects to submit the remaining supplemental responses on or before December 21, 2009.

There are no commitments made in the enclosed supplemental response. If you have any questions regarding this letter, please contact me at (202) 586-9620, or by email to jeff.williams@rw.doe.gov.

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77 KB

RAI Volume 2, Chapter 2.1.1.4, Third Set, Number 1, Supplemental Question 3:

Based on the response to RAI 2.2.1.1.4-3-001, clarify the DOE's approach for using observations from inspection to plan for timely maintenance of emplacement drifts to prevent structural failures that could potentially initiate event sequences. What approach does DOE intend to use to define criteria for "timely maintenance"?

1. RESPONSE

The repository monitoring and the emplacement drift monitoring will support maintaining the subsurface facility in an operational mode throughout the preclosure period, and timely maintenance is not necessary to anticipate, prevent, or mitigate event sequences. The prevention or mitigation of event sequences is not dependent on corrective maintenance activities. This fact and the inherent strength of the host rock allow for the development and implementation of deliberate corrective maintenance plans and approaches.

The "timely maintenance" term, used in the initial response to RAI 2.2.1.1.4-3-001, was written in the context that maintenance will be provided, as needed, to maintain functionality of the subsurface facility throughout the preclosure period. There are no preclosure procedural safety controls or nuclear safety design bases for timely maintenance with respect to prevention of event sequences in the subsurface facility. Therefore, if a problem is found, maintenance will be performed to correct the problem in a timeframe that meets operational needs. Corrective maintenance activities inside emplacement drifts, if necessary, will be analyzed for case-specific conditions and will ensure that personnel safety considerations are weighed properly with the operational needs to develop maintenance plans specific to the situation.

No Category 1 or Category 2 event sequences have been identified for the emplacement drifts related to the failure of ground support or the invert during the handling of waste packages during emplacement or drip shield emplacement at closure. Rockfall event sequences during the 100 year preclosure period that could potentially cause a radionuclide release have been determined to be beyond Category 2. As such, the ground support, the invert, and the rail structure are classified as not important to safety (SAR Section 1.9, Table 1.9-1). Rockfall event sequences included the potential for rock bolt as well as rock impact on waste packages in the emplacement drifts. Event sequences also included potential transport and emplacement vehicle mishaps associated with derailments. Therefore, no specific time limit for corrective maintenance is required to assure the preclosure safety analyses bases are met.

Emplacement drifts will be monitored remotely to ensure that the conditions of the opening, ground support, invert structure, and rail remain functional. Maintaining the integrity of the equipment operating envelope and the invert structure/rail, and the level of monitoring, depend on the phase of repository operations for the particular drift at the time. Monitoring the emplacement drift operating envelope during waste package emplacement operations is an ongoing activity associated with the corresponding equipment entries into the drift for the portion of the drift in which waste packages have not been emplaced.

ENCLOSURE 1

Response Tracking Number: 00409-01-00

RAI: 2.2.1.1.4-3-001

2. COMMITMENTS TO NRC

None.

3. DESCRIPTION OF PROPOSED LA CHANGE

None.